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Team Real

Project: Consultant Staffing Analysis Tool, C.S.A.T.

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Document Revision History

Revision Number	Revision Date	Description	Rationale
0.1	10/8/2014	SRS First Draft	
0.1.2	10/15/2014	SRS Second Draft	Numerous changes to requirements section. Changes based on feedback from the TA and Sogeti.
0.1.3	10/23/2014	SRS Second Draft	Made changes based on Professor O'Dell's feedback.
0.1.5	10/25/2014	SRS Second Draft	Added additional requirements and revised existing ones.
0.1.6	10/28/2014	SRS Second Draft	Added UI interface examples.
1.0	10/29/2014	SRS Gate Review	Added additional requirements and revised existing ones in preparation for SRS Gate Review.
2.0	11/6/2014	SRS Baseline	Added additional requirements and revised existing ones based on comments and suggestions from the SRS Gate Review.

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1. Product Concept

This section describes the purpose, use and intended user audience for the Consultant Staffing Analysis Tool, or CSAT. The purpose of this product is to provide an easy to use, graphical tool that will allow staffing executives at Sogeti USA to analyze their staffing needs and quickly match consultants with client projects that best suit their abilities, background, intended career path, as well as many other business factors. This product shall also streamline the team building process by suggesting optimal teams for a given project based on the aforementioned criteria, allowing the executives to easily assess their staffing options.

1.1 Purpose and Use

CSAT has one primary function: make the process of selecting a team for a software project easier and more intuitive. Currently Sogeti uses a very manual system to select their teams for projects. Staffing executives analyze availability tables, consultant profiles, and project documents to create the most effective team possible. While this system does work it is very labor intensive, which leads to a "Staffing by availability" problem. This is where the team will be built solely based on who is available at any given point and not necessarily their appropriateness for the project. This is what CSAT intends to address.

CSAT will make the team building process easier by removing the need for tedious tables and documents for staffing analysis and instead replace them with an easy to use graphical interface that will allow the staffing executives to see, at a glance, which consultants would best suit a particular project. Not only that, the system will also generate suggested teams by analyzing the consultant data, and comparing it to the needs of the client; thereby automating a large portion of the staffing process. The executives would then be able to look over entire teams instead of individual consultants making the staffing process much faster and more efficient.

CSAT shall also allow clients of Sogeti to connect to the system and see available consultants. They will be able to create teams and select individual consultants they would like to invite to speak at their business. Clients will only be able to see who is available and their skills but no specific personal information. A client would gain access to CSAT by receiving an invite from Sogeti in the form of a link that directs them to the system.

1.2 Intended Audience

CSAT is intended for Sogeti USA as a tool for them to use internally for their consultant staffing needs. However, if this product was ever made available to the public the audience for such a product would be quite broad. In fact, almost any corporation or organization with a large number of individuals needing to be placed into teams could find a use for this product. While the specifics of each organization would be different, the underlying structure of the CSAT system would allow them to effectively place individuals into teams for various types of projects.

2. Product Description and Functional Overview

This section provides the reader with an overview of the Consultant Staffing Analysis Tool. The primary operational aspects of the product, from the perspective of end users, maintainers and administrators, are defined here. The key features and functions found in the product, as well as critical user interactions and user interfaces are described in detail.

2.1 Features and Functions

CSAT shall consist of a scalable web based application, allowing the user to view the system on both a standard PC and a mobile device, a database to hold the relevant client and consultant information, and a web server to host the application and the database. The application itself shall be written using standard web languages such as HTML, CSS, and Java and the database will be a MySQL database to allow for easy data access. These features shall increase the system's maintainability and portability by allowing it to be hosted on almost any type of web server.

The end users of CSAT, primarily the staffing executives, shall have many features available to them. Primarily, the system shall provide a graphical interface where the staffing executives can see consultant and team data in an easy to read fashion that allows them to quickly make staffing choices. For example, when a staffing executive searches for a consultant to add to a project they see graphs for each consultant that shows their appropriateness for a particular project based on certain criteria, such as experience, career goals, cost, and distance. These graphs provide a brief overview of each consultant, however the graphs are dynamic and the staffing executive can click on the icons on the graph to see more details concerning that particular consultant, for example, if they click the cost icon they will see a breakdown of that individuals pay based on their position as well as other things such as travel costs.

Using the graphical user interface the staffing executive shall also be able to create teams by adding individual consultants to a project. They can then use the same graphs to analyze different teams based on the same criteria as the individual consultants, thus allowing them to create the most effective team possible.

The system shall also provide automatically generated teams for each project. That is, the system shall create suggested teams based on certain project attributes. For example, if a project requires a lower cost team then the system shall provide the most optimal team to achieve the lowest cost or if a project is extremely difficult the system shall provide a suggested team with more experience.

The system shall also provide features for the consultants themselves. It shall allow them to set their preferences. For example, they could select the types of projects they would like to work on, their maximum commute distance and their availability for overtime.

The system shall also provide features for the clients of Sogeti. It shall allow them to see available consultants, create teams, and invite consultants to speak at their business. However clients will not be able to see all information in the system, they will only have access to the consultant's names, skills, and availability.

Lastly the administrators of the system shall have features allowing them to generate user accounts, as well as delete and edit them.

2.2 External Inputs and Outputs

Name	Type	Description	Use
Create Account	Input	Creating a new account by entering the account details. Fields such as name, title, salary, skills, address, etc.	The administrator of the system shall be able to manage the users of the system.
Login	Input	The user inputs their username and password to access the system	The user logs into the system.
Create Project	Input	The staffing executive inputs all relevant information for a project into the system. Information such as the client, title, start/end dates, cost, team size, etc.	The user can enter projects to be analyzed by the system.
Create Team	Input	The staffing executive selects consultants to add to a team for a particular project.	The staffing executive can assign consultants to a team for a particular project.
Manage Preferences	Input	The user inputs their preferences on their account. Preferences include: travel distance, overtime availability, type of project, etc.	The system shall use these preferences in determining if a consultant is suited for a particular project.
Invite Consultant to Speak	Input	The user clicks the invitation button on the consultants profile an inputs the relevant information on what they want the consultant to speak about.	Clients would use this input to invite consultants to speak at their businesses.
View Consultants	Output	The system shall display the consultant data in a graphical interface to the user.	The user can use this interface to see if a consultant is well suited for a particular project.

Generate Teams	Output	The system shall generate proposed teams for projects based on the project specifications.	The user can use these teams as a baseline to create the most effective team possible for a given project.
Invite Client	Output	The system shall send an invitation email the specified client. This shall give the client limited access to CSAT.	The user inputs the clients information and sends them an invitation.
Database	Input/Output	The database stores all data in the system and can be accessed or changed by the system.	The system shall make queries to the database to access or change requested information.

Table 1 External Inputs/Outputs

2.3 Product Interfaces

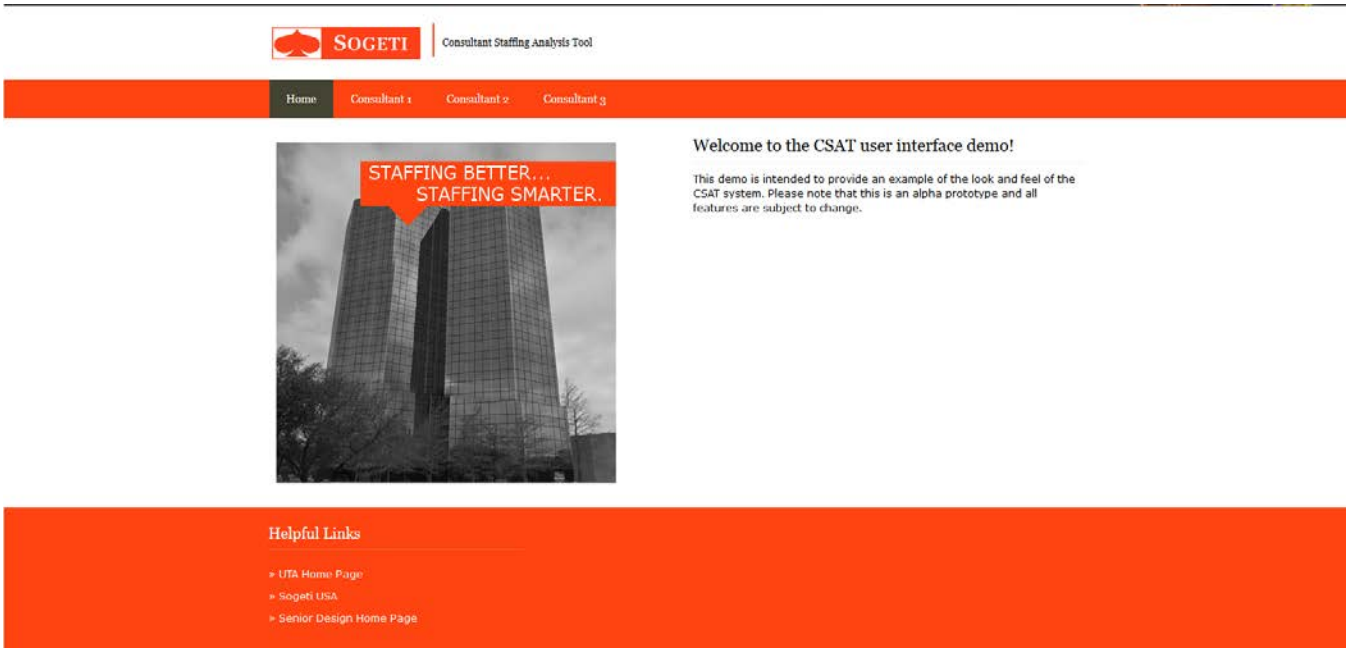

SOGETI
Consultant Staffing Analysis Tool
Home
Consultant 1
Consultant 2
Consultant 3
STAFFING BETTER...
STAFFING SMARTER.
Welcome to the CSAT user interface demo!
This demo is intended to provide an example of the look and feel of the CSAT system. Please note that this is an alpha prototype and all features are subject to change.
Helpful Links
UTA Home Page
Sogeti USA
Senior Design Home Page

Figure 1 - Home Screen Prototype

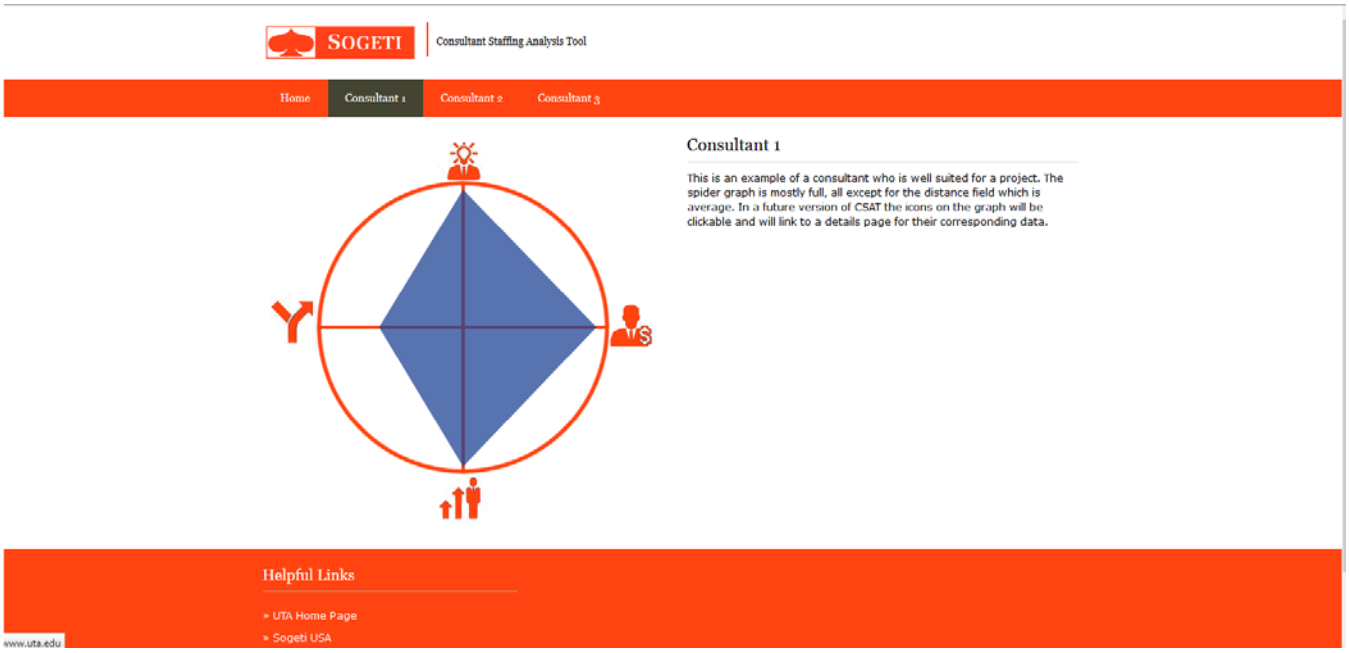

SOGETI
Consultant Staffing Analysis Tool
Home
Consultant 1
Consultant 2
Consultant 3
Consultant 1
This is an example of a consultant who is well suited for a project. The spider graph is mostly full, all except for the distance field which is average. In a future version of CSAT the icons on the graph will be clickable and will link to a details page for their corresponding data.
Helpful Links
» UTA Home Page
» Sogeti USA
www.uta.edu

Figure 2 - Consultant/Team Screen Prototype (Good Match)

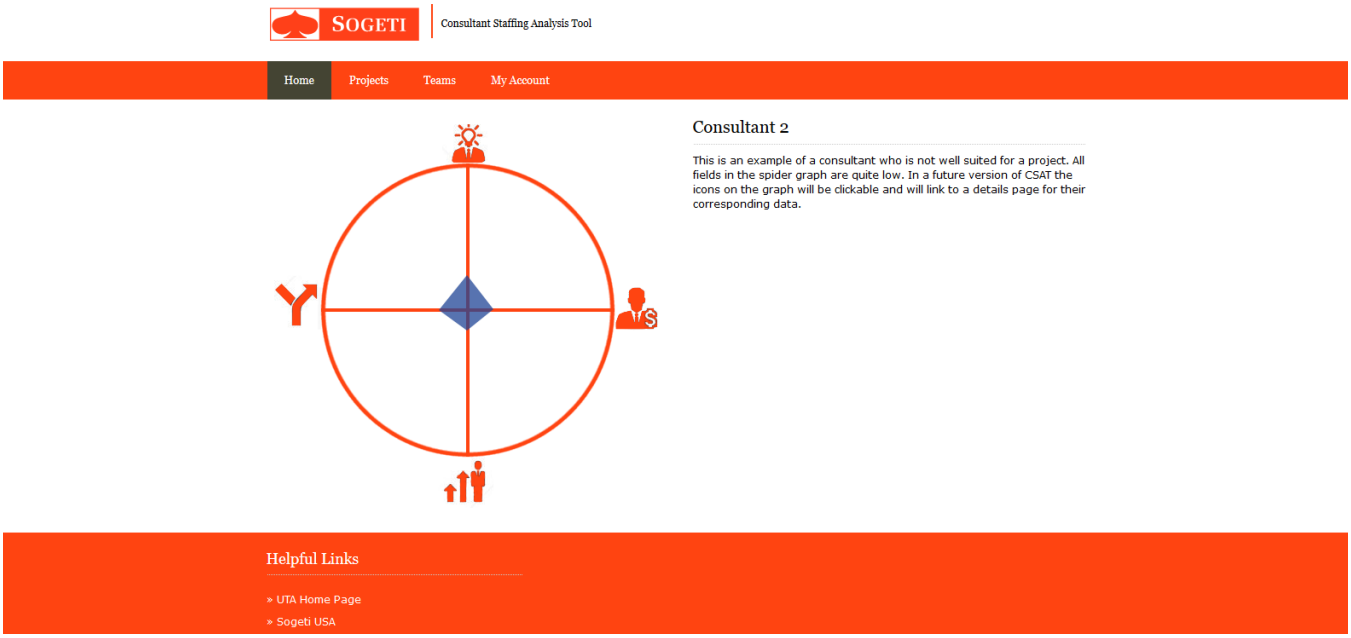

SOGETI
Consultant Staffing Analysis Tool
Home
Projects
Teams
My Account
Consultant 2
This is an example of a consultant who is not well suited for a project. All fields in the spider graph are quite low. In a future version of CSAT the icons on the graph will be clickable and will link to a details page for their corresponding data.
Helpful Links
» UTA Home Page
» Sogeti USA

Figure 3 - Consultant/Team Screen Prototype (Bad Match)

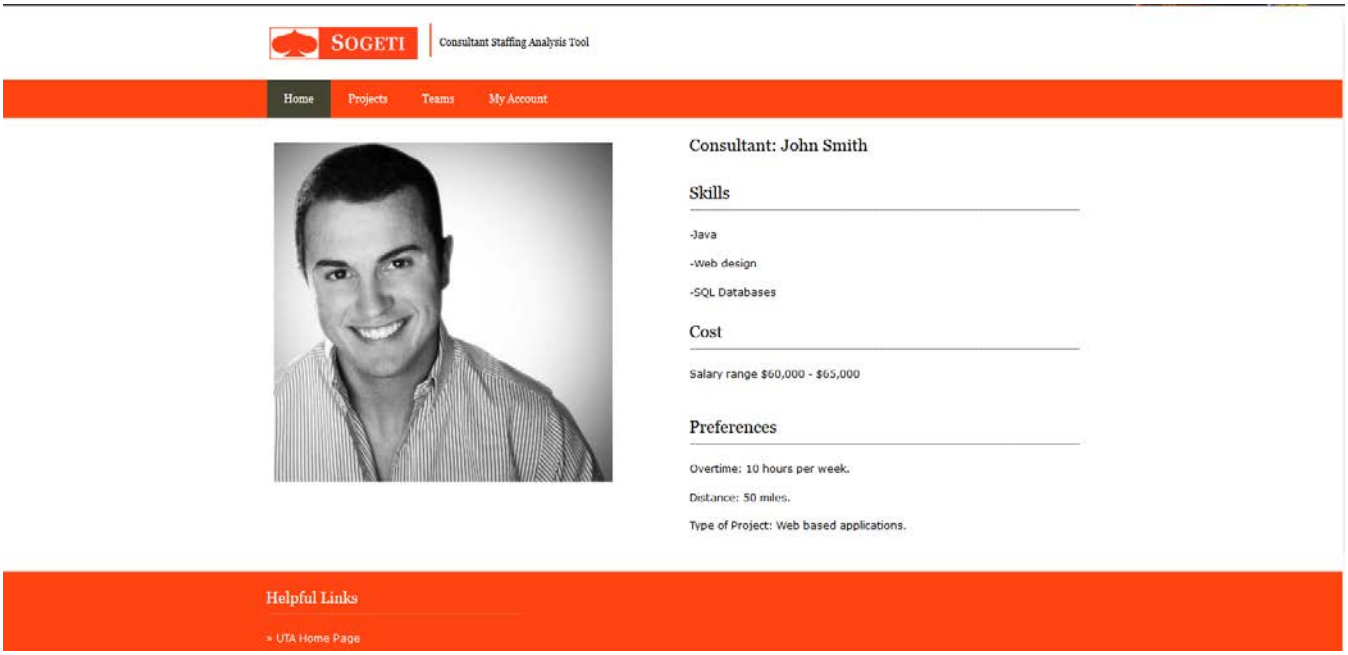


Figure 4 - Consultant Profile Screen Prototype

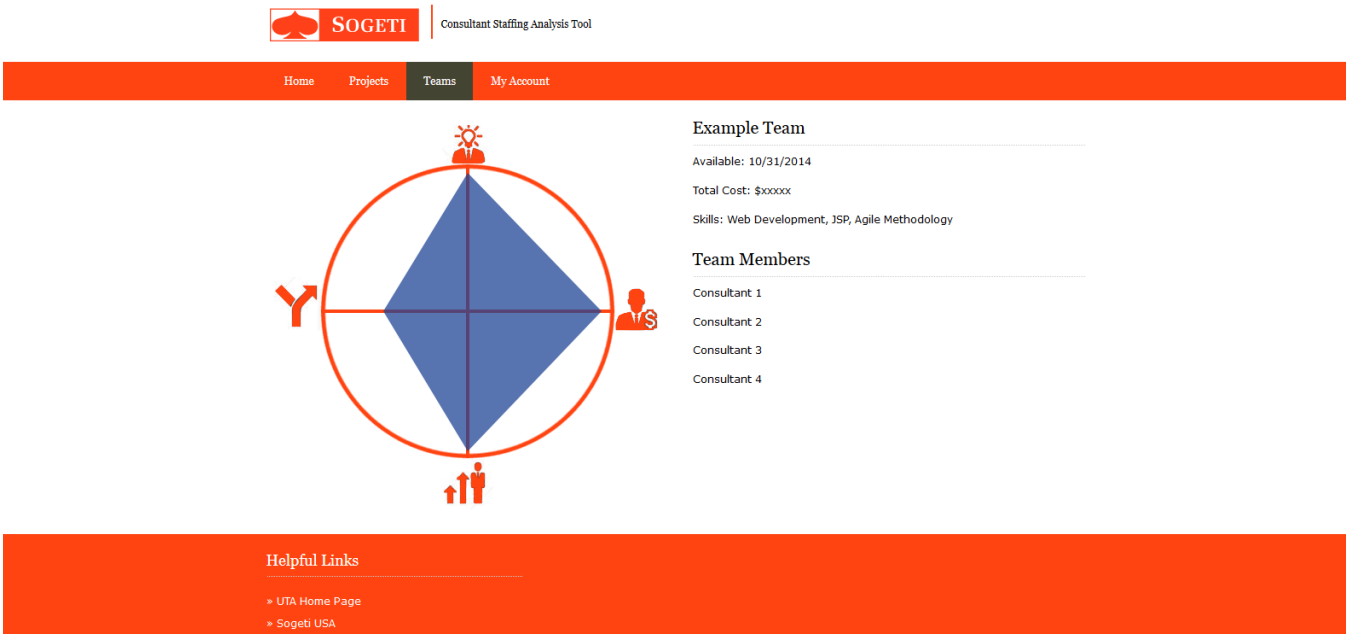


Figure 5 - Team View Screen Prototype

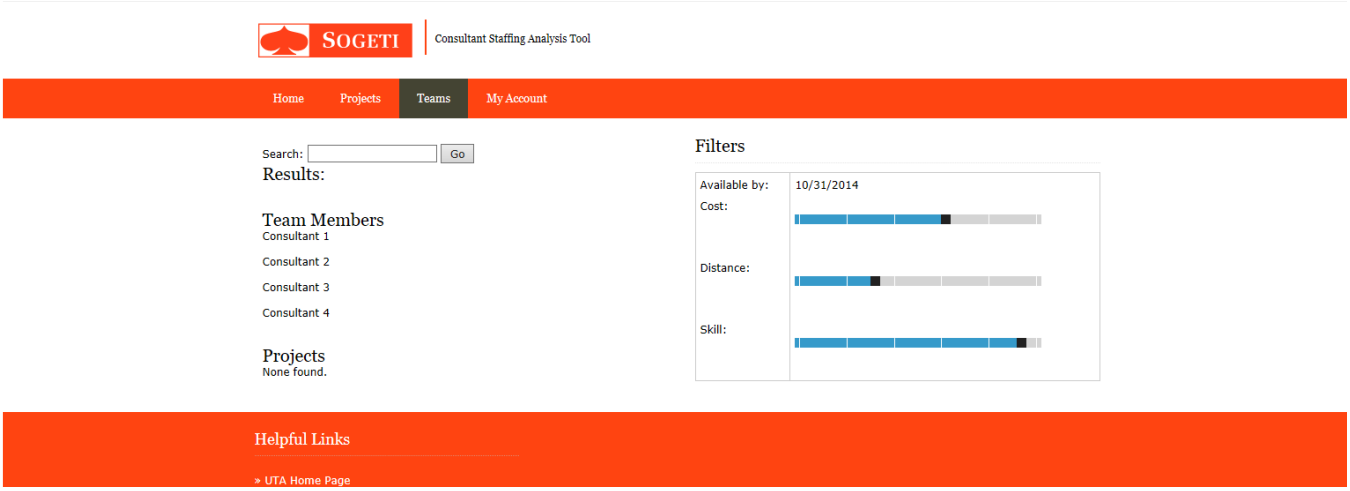
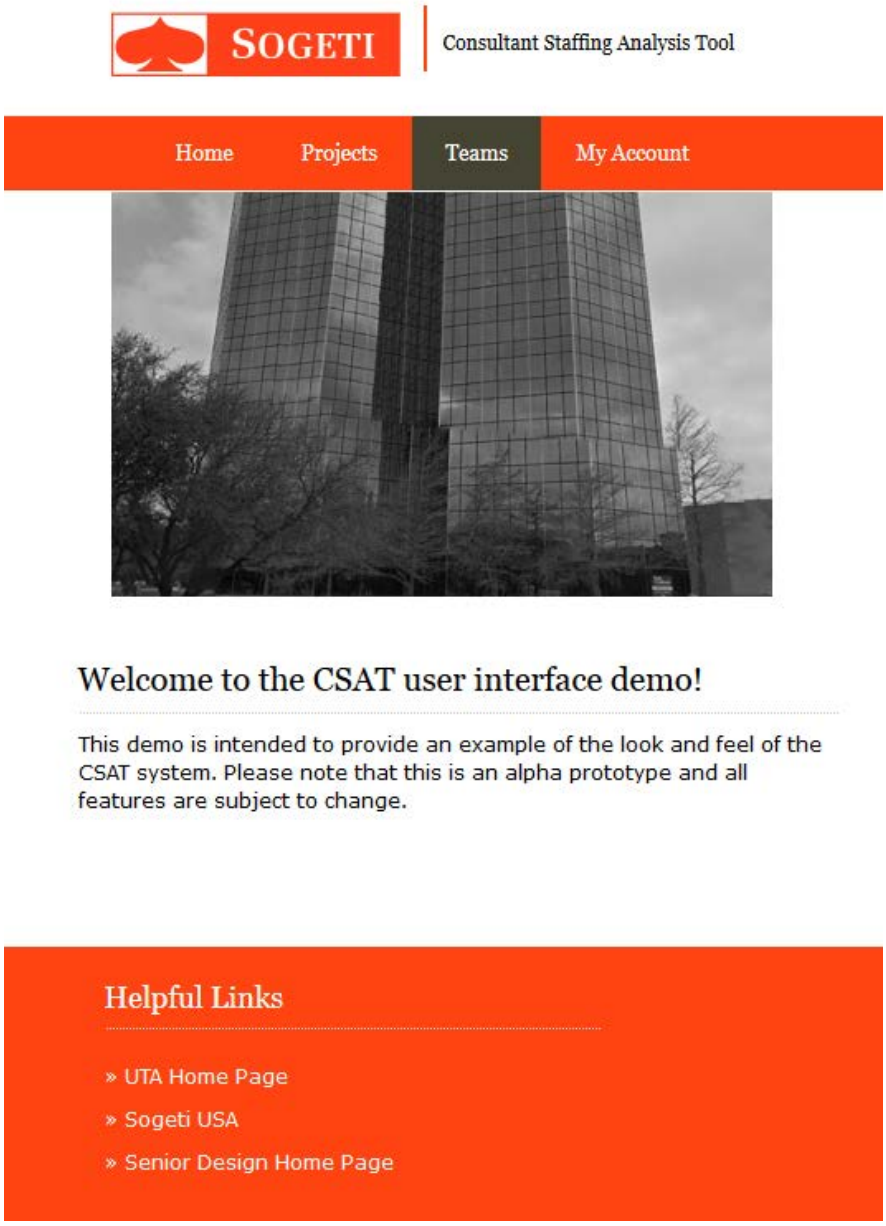


Figure 6 - Search Screen Prototype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This demo is intended to provide an example of the look and feel of the CSAT system. Please note that this is an alpha prototype and all features are subject to change.
Helpful Links
» UTA Home Page
» Sogeti USA
» Senior Design Home Page

Figure 7 - Mobile App Screen Prototype

3. Customer Requirements

This section describes the requirements set forth by the customer, as well as requirements that were added by the development team to further the functionality of the system. These requirements will cover all features of the final product and their respective priority for development, 5 being Critical and 1 being a future requirement.

3.1 Support Multiple User Roles

3.1.1 Description: The system shall allow users to login using their username and password. Each user shall have a particular role with its own access. Supported user roles include: consultant, staffing executives, administrators, and clients. Each user shall only be displayed information or given features based on their respective roles. For example, consultants can only view or edit their own information, staffing executives can see all information, create teams, and create projects, clients can view available consultants' general profile, and admins can perform all functions in the system as well as add, remove and edit all information stored within the system.

3.1.2 Source: Sponsor

3.1.3 Constraints: N/A

3.1.4 Standards: N/A

3.1.5 Priority: 5 – Critical

3.2 Visual Representation of Consultant Data

3.2.1 Description: The system shall allow staffing executives to view consultant's stored data in an easy to use graphical user interface. The staffing executive can then click on various icons on the graphs to see details of the consultant's data. The consultant's data to be stored includes: name, title, salary, skills, address, career goals, and available time. See figure 3 for more details on the look and feel of the graphical user interface.

3.2.2 Source: Sponsor

3.2.3 Constraints: N/A

3.2.4 Standards: N/A

3.2.5 Priority: 5 – Critical

3.3 Search

3.3.1 Description: The system shall allow staffing executives to search the data stored in the system by keyword. For example, the staffing executive can search for projects by entering the project title, or they can search for consultants by entering their name. The system shall also allow the user to filter the results based on various fields.

3.3.2 Source: Sponsor

3.3.3 Constraints: N/A

3.3.4 Standards: N/A

3.3.5 Priority: 5 – Critical

3.4 Create Projects

3.4.1 Description: The system shall allow staffing executives to create new projects by entering project information into the system. Project information to be stored in the system includes: client, title, description, cost, start/end date, and team size.

3.4.2 Source: Sponsor

3.4.3 Constraints: N/A

3.4.4 Standards: N/A

3.4.5 Priority: 5 – Critical

3.5 Edit Projects

3.5.1 Description: The system shall allow staffing executives to edit projects that are stored in the system.

3.5.2 Source: Sponsor

3.5.3 Constraints: N/A

3.5.4 Standards: N/A

3.5.5 Priority: 5 – Critical

3.6 Delete Projects

3.6.1 Description: The system shall allow staffing executives to delete projects that are stored in the system. The system shall store deleted items in the database, even after deletion, to facilitate data recovery if needed. However, deleted items will not appear in search results in the system. Deleted projects can be completely removed by the administrator only.

3.6.2 Source: Sponsor

3.6.3 Constraints: N/A

3.6.4 Standards: N/A

3.6.5 Priority: 5 – Critical

3.7 Generate Proposed Teams

3.7.1 Description: The system shall automatically generate teams for a given project. The system shall create the teams based on criteria within the project such as, cost, experience, availability, etc. See figure 5.

3.7.2 Source: Sponsor

3.7.3 Constraints: N/A

3.7.4 Standards: N/A

3.7.5 Priority: 5 – Critical

3.8 Manual Creation of Teams

3.8.1 Description: In addition to the automatically generated teams the system shall allow staffing executives to manually create their own teams by selecting team members from the pool of available consultants.

3.8.2 Source: Sponsor

3.8.3 Constraints: N/A

3.8.4 Standards: N/A

3.8.5 Priority: 5 – Critical

3.9 Edit Teams

3.9.1 Description: The system shall allow staffing executives to edit teams. They shall be able to add additional team members and delete team members.

3.9.2 Source: Sponsor

3.9.3 Constraints: N/A

3.9.4 Standards: N/A

3.9.5 Priority: 5 – Critical

3.10 Delete Teams

3.10.1 Description: The system shall allow staffing executives to delete teams from the system.

3.10.2 Source: Sponsor

3.10.3 Constraints: N/A

3.10.4 Standards: N/A

3.10.5 Priority: 5 – Critical

3.11 Manage Profile

3.11.1 Description: The system shall allow all users to manage their profile. Users shall be able to set their preferences, such as distance to client, overtime availability, types of projects, etc. Also they will be able to edit their personal information such as their skill set and address. See figure 4.

3.11.2 Source: Sponsor

3.11.3 Constraints: N/A

3.11.4 Standards: N/A

3.11.5 Priority: 5 – Critical

3.12 Manage Skills

3.12.1 Description: The system shall allow users to manage their skills. Users shall be able to add skills, and their skill level. The skill shall then be approved or disapproved by an administrator of the system.

3.12.2 Source: Sponsor

3.12.3 Constraints: N/A

3.12.4 Standards: N/A

3.12.5 Priority: 3 – Moderate

3.13 Invite Clients

3.13.1 Description: The system shall allow staffing executives to invite clients to use the CSAT system. The system shall send the invite in the form of an email with a link directing the client to the CSAT system.

3.13.2 Source: Sponsor

3.13.3 Constraints: N/A

3.13.4 Standards: N/A

3.13.5 Priority: 3 – Moderate

3.14 Invite Consultants to Speak

3.14.1 Description: The system shall allow clients to invite available consultants to speak at their businesses. The client must provide a description of the topic to be spoken on. Then the system should notify the admins of the clients request.

3.14.2 Source: Sponsor

3.14.3 Constraints: N/A

3.14.4 Standards: N/A

3.14.5 Priority: 3 – Moderate

3.15 Android Application

3.15.1 Description: The system shall be provided in an Android application that will be published on the Google Play Store.

3.15.2 Source: Sponsor

3.15.3 Constraints: N/A

3.15.4 Standards: N/A

3.15.5 Priority: 2 – Low

4. Packaging Requirements

This section describes the packaging information for CSAT. The requirements consist of three parts: a file which will contain all code and resources needed for the application to run, an installation guide describing how to move the code to a server, and a user's manual describing how to use the system.

4.1 Software Packaging

4.1.1 Description: The system shall be delivered as a single .zip file containing all source code and resources used.

4.1.2 Source: Team Real

4.1.3 Constraints: N/A

4.1.4 Standards: N/A

4.1.5 Priority: 5 – Critical

4.2 Installation Guide

4.2.1 Description: The .zip file will contain a text file clearly describing how to set up the application on a server.

4.2.2 Source: Team Real

4.2.3 Constraints: The guide will be provided in English only.

4.2.4 Standards: N/A

4.2.5 Priority: 4 – High

4.3 Administrator Guide

4.3.1 Description: The .zip file shall contain a text file clearly describing the features available to an administrator that will not be included in the normal user guide. For example, adding new accounts, deleting accounts, resetting passwords, etc. It shall also include the initial system administrator passwords and instructions on how to change them once the system is installed.

4.3.2 Source: Team Real

4.3.3 Constraints: The guide will be provided in English only.

4.3.4 Standards: N/A

4.3.5 Priority: 5 – Critical

4.4 User Guide

4.4.1 Description: The .zip file shall contain a thorough user guide outlining how the various users are to use the system. This will include step by step breakdowns of use cases, list of user types and their features, as well as other pertinent information required by the end users.

4.4.2 Source: Team Real

4.4.3 Constraints: The guide will be provided in English only.

4.4.4 Standards: N/A

4.4.5 Priority: 5 – Critical

4.4 Google Play Publication

4.4.1 Description: The Android application shall be published on the Google Play Store to allow the users to easily download the app to their Android devices.

4.4.2 Source: Team Real

4.4.3 Constraints: N/A

4.4.4 Standards: N/A

4.4.5 Priority: 2 – Low

5. Performance Requirements

This section specifies the performance requirements for the Consultant Staffing Analysis Tool, or CSAT. This includes response time, mobile compatibility, and browser compatibility.

5.1 Response Time

5.1.1 Description: The system shall provide a fast and responsive user interface. A delay of more than a second will have a percent done indicator to keep the user's attention. Delays of more than ten seconds are not acceptable.

5.1.2 Source: Team Real

5.1.3 Constraints: Device using the application must be connected to the internet. Also the latency of the user's internet connection will effect response time.

5.1.4 Standards: N/A

5.1.5 Priority: 4 - High

5.2 Mobile Browser Compatibility

5.2.1 Description: The application will be compatible with most mobile screen sizes and mobile web browsers. Priority shall be given to phone compatibility utilizing the Chrome and Safari mobile browsers. This shall be achieved by creating a dedicated mobile friendly sub domain with all the features of the primary site.

5.2.2 Source: Team Real

5.2.3 Constraints: Screens of various sizes must be considered.

5.2.4 Standards: N/A

5.2.5 Priority: 2 – High

5.3 Browser Compatibility

5.3.1 Description: The system shall be compatible with most internet browsers. These include Google Chrome, Firefox, Safari, and Internet Explorer. Priority shall be given to Chrome and Firefox as they are the most common browsers used by Sogeti.

5.3.2 Source: Team Real

5.3.3 Constraints: N/A

5.3.4 Standards: N/A

5.3.5 Priority: 5 – Critical

5.4 Android Compatibility

5.4.1 Description: The Android application shall be compatible with the latest Android APIs.

5.4.2 Source: Team Real

5.4.3 Constraints: N/A

5.4.4 Standards: N/A

5.4.5 Priority: 2 – Low

5.5 Database Scalability

5.5.1 Description: The CSAT database shall be scalable to allow for growth within Sogeti. For example the system shall allow the user to add more user accounts, teams, and projects as the need arises without impacting performance. Currently the system shall support a minimum of 1000 consultant accounts and projects.

5.5.2 Source: Team Real

5.5.3 Constraints: N/A

5.5.4 Standards: N/A

5.5.5 Priority: 5 – Critical

6. Security Requirements

This section specifies the safety requirements for the Consultant Staffing Analysis Tool, or CSAT. Team Real assumes no responsibility for any attacks on the system.

6.1 Malicious Input Protection

6.1.1 Description: The system shall validate all user input to ensure that the data entered is correct. For example, the system shall validate inputs to be sure they are not too long, too short, or of the wrong format.

6.1.2 Source: Team Real

6.1.3 Constraints: N/A

6.1.4 Standards: N/A

6.1.5 Priority: 3 – Moderate

6.2 Secure Database Access

6.2.1 Description: The system shall only allow users to access information in the database that is related to their roles. For example, consultants can only see their data, staffing executives can see all consultants' data and projects, administrators can see all data in the system, and clients can only see the consultants' general profile and their availability.

6.2.2 Source: Team Real

6.2.3 Constraints: N/A

6.2.4 Standards: N/A

6.2.5 Priority: 3 – Moderate

6.3 Error Messages

6.3.1 Description: The application will provide safe error messages that avoid displaying user and application details. That is, only enough information to adequately explain the error will be shown to the user.

6.3.2 Source: Team Real

6.3.3 Constraints: N/A

6.3.4 Standards: N/A

6.3.5 Priority: 3 – Moderate

6.4 Sensitive information

6.4.1 Description: The application will store sensitive information, such as passwords and encryption keys, in a secure manner. The final product shall also be hosted on a secure server protected by Sogeti's VPN. Only users who have access to the VPN shall be able to access the system.

6.4.2 Source: Team Real

6.4.3 Constraints: N/A

6.4.4 Standards: N/A

6.4.5 Priority: 4 – High

7. Maintenance and Support Requirements

This section will specify maintenance and support requirements for the Consultant Staffing Analysis Tool, or CSAT.

7.1 Source Code

7.1.1 Description: All source code will be made available to Sogeti in the final product delivery. It will be thoroughly documented using comments in the code as well as in the user manual under the Source Code section. This section will contain descriptions of classes and data objects used in the code, as well as their associated attributes and functions.

7.1.2 Source: Team Real

7.1.3 Constraints: N/A

7.1.4 Standards: N/A

7.1.5 Priority: 4 – High

7.2 Software Support

7.2.1 Description: Team Real shall not be responsible for supporting CSAT after its initial release. All known issues and assumptions will be documented in the user guide under the Source Code section.

7.2.2 Source: Team Real

7.2.3 Constraints: N/A

7.2.4 Standards: N/A

7.2.5 Priority: 4 – High

7.3 Troubleshooting Guide

7.3.1 Description: Team Real shall provide a troubleshooting guide that will provide general troubleshooting steps for the system. This guide shall also outline all built in error messages, describing their probable cause and suggested resolution.

7.3.2 Source: Team Real

7.3.3 Constraints: The guide will be provided in English only.

7.3.4 Standards: N/A

7.3.5 Priority: 3 – Moderate

7.4 Language Support

7.4.1 Description: All documents and user guides shall be provided in English.

7.4.2 Source: Team Real

7.4.3 Constraints: N/A

7.4.4 Standards: N/A

7.4.5 Priority: 5 – Critical

7.5 Training

7.5.1 Description: Brief training will be provided for users who will utilize the system. This shall be in the form of both a user manual, as stated in requirement 4.4, and a brief training demo with Sogeti.

7.5.2 Source: Team Real

7.5.3 Constraints: N/A

7.5.4 Standards: N/A

7.5.5 Priority: 2 – Low

8. Other Requirements

This section specifies additional requirements not included in the previous sections.

8.1 Extensibility

8.1.1 Description: The web application will be designed and implemented taking future growth into consideration, as more enhancements and functionality are likely to be added. This shall be achieved by developing CSAT such that it is highly modular and all modules are loosely coupled.

8.1.2 Source: Team Real

8.1.3 Constraints: N/A

8.1.4 Standards: N/A

8.1.5 Priority: 3 – Moderate

8.2 iOS Mobile Application

8.2.1 Description: The system shall be converted to an iOS™ app to allow the users to access the system on their mobile iOS™ device.

8.2.2 Source: Sponsor

8.2.3 Constraints: N/A

8.2.4 Standards: N/A

8.2.5 Priority: 1 – Future

9. Acceptance Criteria

This section specifies the criteria by which CSAT will be accepted, as well as the procedures used to demonstrate the functionality of the system to Sogeti. All requirements must pass this criteria to be accepted in the final product.

9.1 Verify Consultant Data and Accounts

9.1.1 Requirement(s) addressed:

Requirement Number	Name
3.1	Support multiple user types
3.2	Visual representation of Consultant's Data
3.11	Manage Profile

9.1.2 Verification Procedure: The customer will create a consultant account and fill in its respective data. Then they will inspect the related graphs, charts and displays to ensure that the data is represented correctly. Also Team Real will provide them a paper copy of the entries in the database, to ensure that the data being stored is correct.

9.2 Verify Project Data

9.2.1 Requirement(s) addressed:

Requirement Number	Name
3.4	Create Project
3.5	Edit Project
3.6	Delete Project

9.2.2 Verification Procedure: The customer will create a project and fill in its respective data. Then they will inspect the project entry in the user interface to ensure that the data is represented correctly. Also Team Real will provide a paper copy of the entries in the database, to ensure that the data being stored is correct. Then the user shall perform an edit to the project and save it. Afterward they will inspect the entry as before to ensure the data is correct. Lastly the user shall delete the project and confirm that it is removed. Also Team Real will provide a paper copy of the database entry to ensure that it is removed from the database.

9.3 Verify Generated Teams

9.3.1 Requirement(s) addressed:

Requirement Number	Name
3.7	Generate Proposed Teams

9.3.2 Verification Procedure: The customer will input a project and then inspect the generated teams that the system provides to verify that they meet the criteria set forth in the project specification.

9.4 Verify Create Team

9.4.1 Requirement(s) addressed:

Requirement Number	Name
3.8	Manual Creation of Teams

9.4.2 Verification Procedure: The customer will input a project and then select consultants and assign them to a team for that project. The customer will then inspect the assigned team to ensure that all data for the team is accurate as per the individual consultants in that team. For example the cost of the team should add up to the cost of the individual consultants combined.

9.5 Verify Client Privileges

9.5.1 Requirement(s) addressed:

Requirement Number	Name
3.2	Visual Representation of Consultant's Data
3.12	Invite Clients
3.13	Invite Consultants to Speak

9.5.2 Verification Procedure: The customer shall invite a test client. They will then click the link in the invitation to access CSAT as a client. They will then inspect the interface to ensure that only the relevant data is shown to the client. They will then invite a consultant to speak to ensure that the client can successfully invite a consultant and that all necessary notifications are sent.

10. Use Cases

This section focuses on the interaction between the multiple users and the system in detail. This section will have all of the use cases with scenario describing the process. It will define the actor(s) that will be interacting with the system for each use case, the high level use cases in the format of TUCBW (The Use Case Begins With) and TUCEW (The Use Case Ends With), and use case diagrams to demonstrate the interaction visually.

10.1 "Login Using Username And Password"

10.1.1 Scenario: User will enter their username and password and press the login button. They will then be directed to the home page. See figure 1. The user can then click the logout button on any page to logout of the system.

10.1.2 Actor(s): Admin, Staffing Executives, Consultants

10.1.3 TUCBW: The user clicks "Login" button in the Login Page.

10.1.4 TUCEW: The user sees the home page.

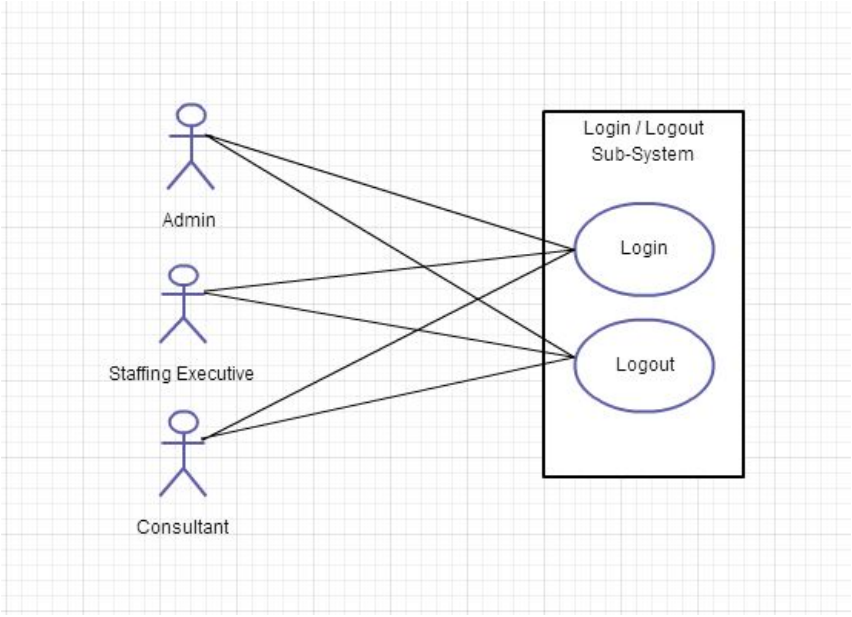

Figure 8 - Use Case: Login/Logout

10.2 “Add, Edit, or Delete Account”

10.2.1 Scenario: User clicks on the account to be edited or deleted or they click on the add new account button on the account management page. The user then fills out the respective form and clicks submit. The user will then see a confirmation message stating that the change has been made.

10.2.2 Actor(s): Admin

10.2.3 TUCBW: The user clicks “Add” or “Edit” or “Delete” button in the account page.

10.2.4 TUCEW: The user sees the confirmation message stating that the change has been made.

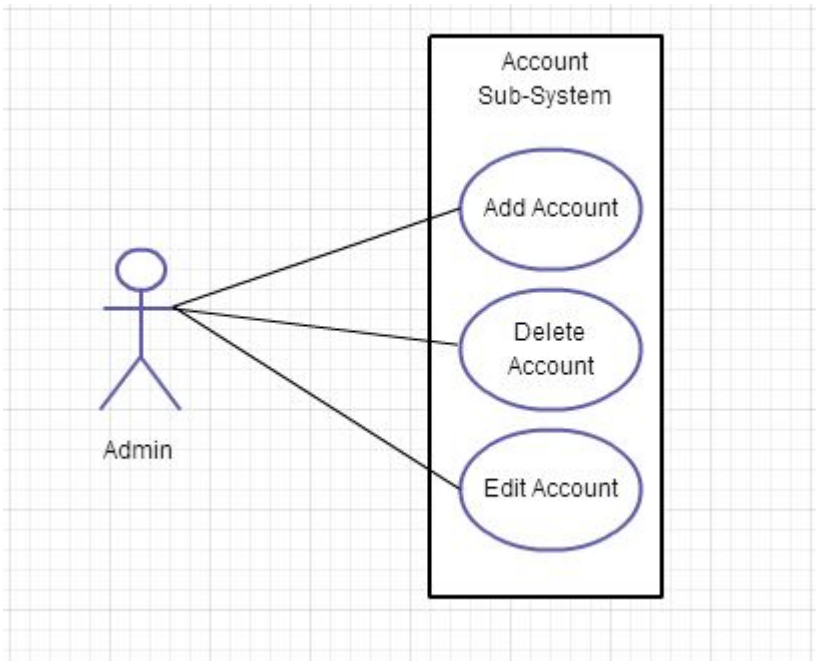

Figure 9 - Use Case: Add/Edit/Delete Account

10.3 “Add, Edit, Or Delete Project”

10.3.1 Scenario: User clicks on the project to be edited or deleted or they click on the add new project button. The user then fills out the respective form and clicks submit. The user will then see a confirmation message stating that the change has been made.

10.3.2 Actor(s): Admin, Staffing Executives

10.3.3 TUCBW: The user clicks “Add” or “Edit” or “Delete” button in the Project Page.

10.3.4 TUCEW: The user sees the confirmation message stating that the change has been made.

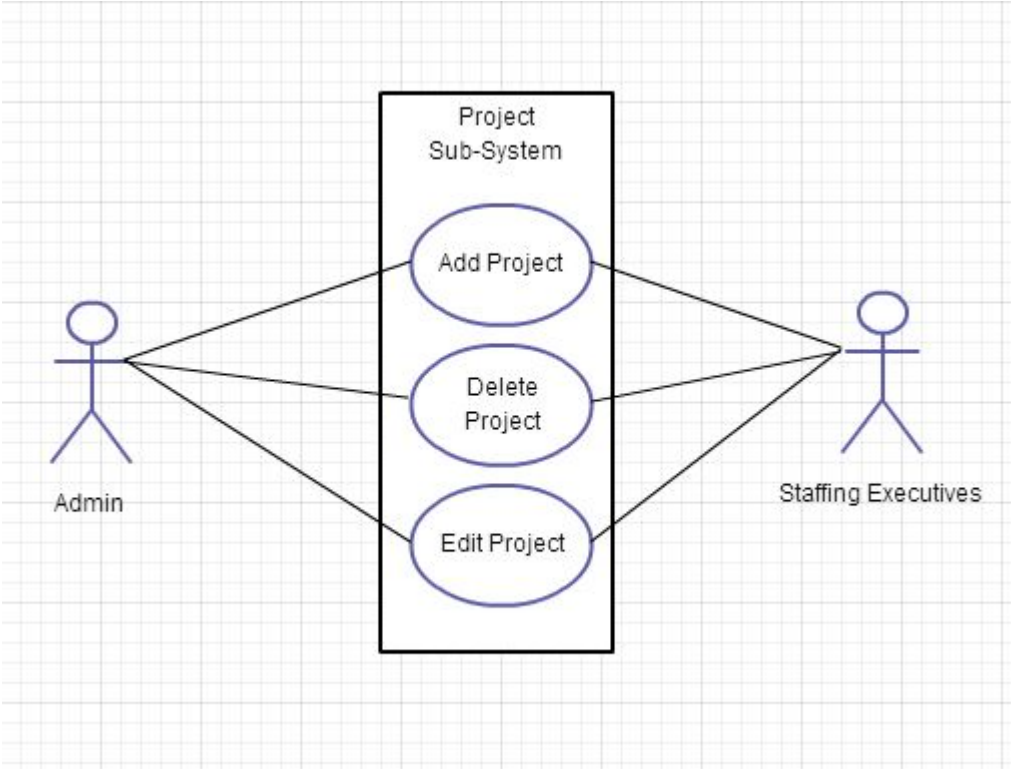

Figure 10 - Use Case: Add/Edit/Delete Project

10.4 “Create, Edit, Or Delete Teams”

10.4.1 Scenario: User clicks on the team to be edited or deleted or they click on the create new team button. The user then fills out the respective form and selects the consultants for the team and clicks submit. The user will then see a confirmation message stating that the change has been made.

10.4.2 Actor(s): Admin, Staffing Executives, Clients

10.4.3 TUCBW: The user clicks “Add” or “Edit” or “Delete” button in the Team Page.

10.4.4 TUCEW: The user sees the confirmation message stating that the change has been made.

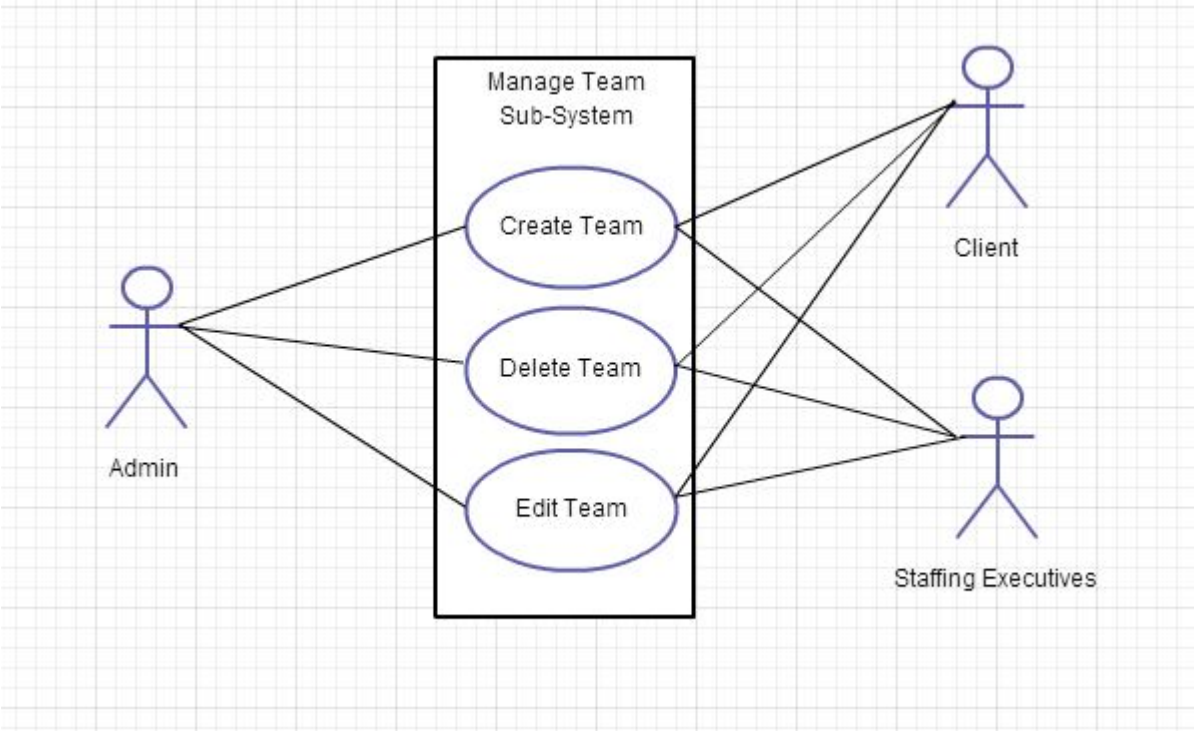

Figure 11 - Use Case: Create/Edit/Delete Team

10.5 "Search, View, Filter, And Compare Visual Representation Of Data"

10.5.1 Scenario: The user will enter their search criteria into the search field and click search. Then they can filter the results by a number of fields, cost, availability, etc. They can then click on an item in the search results to see its details, see figure 2, or select multiple items and compare them. Users shall only be shown data relating to their respective roles.

10.5.2 Actor(s): Admin, Staffing Executives, Clients

10.5.3 TUCBW: The user enters their search criteria and clicks the search button.

10.5.4 TUCEW: The user sees the details of a selected item.

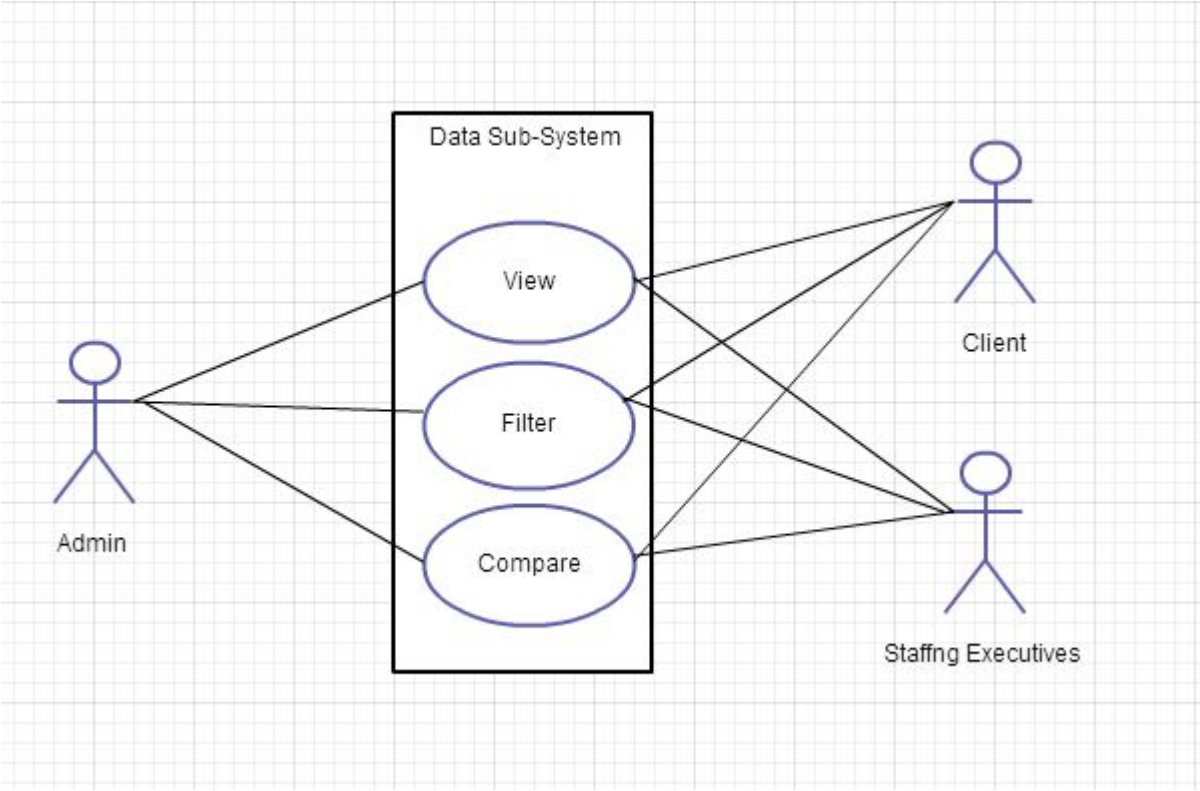

Figure 12 - Use Case: View/Filter/Compare Data

10.6 “Invite Client”

10.6.1 Scenario: The user shall click on the invite client button on the CSAT home page. They will then enter the clients information and click the submit button. The system shall then send the client an invitation email containing a link to the CSAT system. The user is then shown a confirmation message stating that the invitation has been sent.

10.6.2 Actor(s): Admin, Staffing Executives

10.6.3 TUCBW: The user clicks on the invite client button on the CSAT home page.

10.6.4 TUCEW: The user sees a confirmation message stating that the invitation has been sent.

10.7 “Invite Consultants to Speak”

10.7.1 Scenario: The user clicks on the invite to speak button on the consultants profile page. The user then fills out the invitation form and clicks submit. Notifications are sent to the client and the admins stating that an invitation has been made. The user is then shown a confirmation message stating that the invitation has been sent.

10.7.2 Actor(s): Clients

10.7.3 TUCBW: The user clicks on the invite to speak button on the consultants profile page.

10.7.4 TUCEW: The user sees a confirmation message stating that the invitation has been sent.

10.8 “Manage Preferences”

10.8.1 Scenario: User clicks on the edit preferences button on their profile page. User then edits their preferences and clicks submit. User is shown a confirmation message that the change has been made.

10.8.2 Actor(s): Consultants

10.8.3 TUCBW: The user edits their preferences and click the submit button.

10.8.4 TUCEW: The user sees a confirmation message stating that the change has been made.

10.9 “Manage Skills”

10.9.1 Scenario: User clicks on the edit skills button on their profile page. User then edits their skills and clicks submit. The user is shown a confirmation message that the skill update has been made and is pending administrator approval.

10.9.2 Actor(s): Consultants

10.9.3 TUCBW: The user edits their skills and click the submit button.

10.9.4 TUCEW: The user sees a confirmation message stating that the skill update has been made and is pending administrator approval.

11. Feasibility Assessment

The following section is an assessment of the feasibility of the project based on knowledge of previous projects with similar requirements. The six sub-sections below are scope analysis, research, technical analysis, cost analysis, resource analysis, and schedule analysis.

11.1 Scope Analysis

The scope of critical requirements for CSAT is reasonable considering the knowledge and skills of this team. The team has a wealth of knowledge in programming and is well suited for this software centric project. However, the scope of the project must still be constrained due to the relatively small amount of time available to work on the project. Thus the scope will be constrained by focusing on the web based application first, with a mobile interface for smart phone browsers, and an Android application as a low priority.

11.2 Research

The research required for critical requirements will be minimal. Our team has plenty of experience in developing web based applications and will be able to complete this project through that collective knowledge. However, the team as a whole does not have a lot of working experience with large database systems and system security. We will also need to research the differences between various web based programming languages to select the set of languages best suited for our project. These facets of the project will have to be researched more heavily to fulfill the system requirements, languages such as CSS, HTML, PHP, JSP, etc. We will also need to research Android application development to ensure that we can complete the application within the allotted time as well as meet the project requirements.

11.3 Technical Analysis

CSAT is a software project that will run on standard web browsers. The application will be accessible on Chrome, Firefox, Internet explorer, and shall be scaled down for mobile browsers.

Due to the very software centric nature of this project, there are not very many technological challenges that need to be conquered to complete it. The technologies that we will be employing are very well established and there is a lot of documentation for them. This allows us to focus on creating a usable tool for the customer versus creating completely new technologies.

This does not, however, mean that there are no development challenges in this system. For instance creating the algorithm to generate the suggested teams for a project, developing the Android application, and creating the database and database interface for the system will require further research.

11.4 Cost Analysis

The cost of CSAT will fall well within the budgeted $800. This project is entirely software based and therefore the only cost associated with it will be our team communications website and the Android application publishing fee. The monthly cost of the website is $8.95 and it will need to be accessible for the duration of development for a total of $89.50 over the 10 month development time for this project. This cost is not a development cost for the project, but an administrative one. Therefore the team will assume responsibility for its cost and it will not impact the budget.

The only other monetary cost for the system development is the Google Play Store publishing for the Android application. This is only $25 and thus the project shall fall well within the monetary budget.

11.5 Resource Analysis

The team consists of one computer engineer, two software engineers and two computer science majors. The team possesses the skills necessary to complete all critical requirements.

Some preliminary roles have been put forth based on the team members strengths. Our software engineers will be focusing on high level design and documentation. Our computer scientists will be working on the implementation and testing of the software. And our computer engineer will be focusing on security of the system. These roles are on top of the other functions the team members will be performing throughout the life of the project.

11.6 Schedule Analysis

To assess the feasibility of the project, the team will use two estimation methods: COCOMO, and Jones' First Order Estimation. Function points are used for both methods, as shown below:

Function Points

Measurement Parameter	Low Complexity	Medium Complexity	High Complexity	Total
Number of external inputs	2x(3)= 6	3x(4) = 12	1x(6)=6	24
Number of external outputs	4x(4)=16	4x(5) = 20	1x(7) = 7	43
Number of user inquiries	1x(3) = 3	2x(4)=8	1x(6)=6	17
Logical Internal Files	4x(7)=28	1x(10)=10	1x(15)=15	53
External Interfaces	0	0	1x(10)=10	10
Total	53	50	44	147

Table 2 - Function Points

Note: Numbers in parenthesis are influence/weighting factors based on parameter complexity.

Total unadjusted function points: **147**

The following table displays complexity adjustment values, used to determine the influence multiplier, which is used to adjust the number of function points according to system complexity. See below for more details:

Complexity Adjustment Values

Weighting Factors		Weighting Values on a scale of 0 to 5
1.	Data communications	4
2.	Distributed data processing	2
3.	Performance	4
4.	Heavily used configuration	2
5.	Transaction Rate	4
6.	On-Line data entry	5
7.	End-user efficiency	5
8.	On-Line update	5
9.	Complex processing	3
10.	Reusability	4
11.	Installation ease	1
12.	Operational ease	5
13.	Multiple sites	1
14.	Facilitate change	5
Total		50

Table 3 - Complexity Adjustment Values

Influence Multiplier: 0.65+0.01(50) = 1.15

FP = 147(1.15) = 169

Adjusted Function Points = **169**

Method 1: COCOMO

- Project language type: Object Oriented – 30 lines per function point
- Estimated lines of code(LOC): 169 x 30 = **5070**
- Model: Organic
- Effort = 2.4(KLOC)^1.05 = 2.4(5.07)^1.05 = **13.2 person months**
- Duration = 2.5*Effort^.38 = **6.66 calendar months**
- Resources required: 2 persons

Method 2: Jones' First-Order

- Kind of Software: Business
- Duration Formula = FP^Power Value

Estimation Type	Power value	Duration (calendar months)
Best in Class	0.41	8.2
Average	0.43	9.0
Worst in Class	0.46	10.6

Table 4 - Best/Average/Worst in Class Estimation

Note: The numbers above are relevant to business software only.

Conclusion

From Jones' First Order Method, the project will take from 8 to 10.6 months to complete. We believe we fit into the "average" category, and thereby expect to take approximately 9 calendar months according to this method, including winter break (the month of December). Using COCOMO algorithms, we expect to spend approximately 7 calendar months in the project. We thus have an average of 8 months to complete our project. The resources required are 2 persons assuming a 40-hour week. That equates to a little over 400 hours per person. Assuming each person spends at least 15 hours per week, we can complete the project in roughly 8 months.

12. Future Items

This section will specify future items. That is, requirements with a priority of one that will not be completed in the initial delivery of the CSAT system.

12.1 iOS Mobile Application

12.1.1 Description: The system shall be converted to an iOS™ app to allow the users to access the system on their mobile iOS™ device.

12.1.2 Source: Sponsor

12.1.3 Constraints: N/A

12.1.4 Standards: N/A

12.1.5 Priority: 1 – Future